LAW OFFICES
SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
WASHINGTON, DC 20037-3213
TELEPHONE (202) 293-7060
FACSIMILE (202) 293-7860
www.sughrue.com

March 20, 2000

BOX PCT

Assistant Commissioner for Patents
Washington, D.C. 20231

PCT/FR98/02004
-filed September 18, 1998

Re: Application of Jacques NOZICK
A LOW-CURRENT OUTLET HAVING A REAR ORGANIZER CAP
Our Ref: Q58256

Dear Sir:

The following documents and fees are submitted herewith in connection with the above application for the purpose of entering the National stage under 35 U.S.C. § 371 and in accordance with Chapter II of the Patent Cooperation Treaty:

- ☐ an executed Declaration and Power of Attorney.
- ☑ an English translation of the International Application.
- ☑ 3 sheets of formal drawing (Figures 1-7).
- ☐ an English translation of Article 19 claim amendments.
- ☑ an English translation of Article 34 amendments (annexes to the IPER).
- ☐ an executed Assignment and PTO 1595 form.
- ☑ a Form PTO-1449 listing the ISR references, and a complete copy of each reference.
- ☑ a Preliminary Amendment

It is assumed that copies of the International Application, the International Search Report, the International Preliminary Examination Report, and any Articles 19 and 34 amendments as required by § 371(c) will be supplied directly by the International Bureau, but if further copies are needed, the undersigned can easily provide them upon request.

The Government filing fee is calculated as follows:

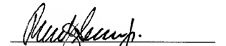
Total claims	10	- 20 =		x $18.00	=	$.00
Independent claims	1	- 3 =		x $78.00	=	$.00
Base Fee						$840.00
TOTAL FEE						$840.00

A check for the statutory filing fee of $840.00 is attached. You are also directed and authorized to charge or credit any difference or overpayment to said Account. The

Commissioner is hereby authorized to charge any fees under 37 C.F.R. §§ 1.16, 1.17 and 1.492 which may be required during the entire pendency of the application to Deposit Account No. 19-4880. A duplicate copy of this transmittal letter is attached.

Priority is claimed from September 22, 1997 based on FR Application No. 97/11763.

Respectfully submitted,



Robert J. Seas, Jr.
Registration No. 21,092

SUGHRUE, MION, ZINN,
MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, D.C. 20037-3213
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

Date: March 20, 2000

19 MAY 2000

Applicant or Patentee: INFRA +
Serial or Patent No.: 09/508,962
Filed or Issued:
For: A LOW-CURRENT OUTLET HAVING A REAR ORGANIZER

Attorney's Docket No.:

VERIFIED STATEMENT (DECLARATION) CLAIMING SMALL ENTITY STATUS
(37 CRF 1.9(f) and 1.27(c)) - SMALL BUSINESS CONCERN

I hereby declare that I am

[ ] the owner of the small business concern identified below:
[X] an official of the small business concern empowered to act on behalf of the concern identified below:

NAME OF CONCERN: INFRA +
ADDRESS OF CONCERN: ZAC du Plateau - 3, rue des Marronniers
F-94240 L'HAY LES ROSES / FRANCE

I hereby declare that the above identified small business concern qualifies as a small business concern as defined in 13 CFR 121.3-18, and reproduced in 37 CFR 1.9(d), for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, in that the number of employees of the concern, including those of its affiliates, does not exceed 500 persons. For purposes of this statement, (1) the number of employees of the business concern is the average over the previous fiscal year of the concern of the persons employed on a full-time, part-time or temporary basis during each of the pay periods of the fiscal year, and (2) concerns are affiliates of each other when either, directly or indirectly, one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.

I hereby declare that rights under contract or law have been conveyed to and remain with the small business concern identified above with regard to the invention, entitled A LOW-CURRENT OUTLET HAVING A REAR ORGANIZER by inventor(s) described in

[x] the specification filed herewith
[X] application serial no. 09/508,962, filed September 18, 1998 *
[ ] patent no. , issued .

* International filing date.

If the rights held by the above identified small business concern are not exclusive, each individual, concern or organization having rights to the invention is listed below# and no rights to the invention are held by any person, other than the inventor, who could not qualify as a small business concern under 37 CFR 1.9(d) or by any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e). #NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CRF 1.27)

NAME
ADDRESS
[ ] INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

NAME
ADDRESS
[ ] INDIVIDUAL [ ] SMALL BUSINESS CONCERN [ ] NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statement may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

NAME OF PERSON SIGNING Jacques NOZICK
TITLE OF PERSON OTHER THAN OWNER Directeur Général
ADDRESS OF PERSON SIGNING INFRA + - ZAC du Plateau
3, rue des Marronniers - 94240 L'HAY LES ROSES / FRANCE
SIGNATURE DATE April 4, 2000

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

Jacques NOZICK

Appln. No.: PCT/FR98/02004 Group Art Unit:

Filed: March 20, 2000 Examiner:

For: A LOW-CURRENT OUTLET HAVING A REAR ORGANIZER CAP

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

Prior to examination, please amend the above-identified application as follows:

IN THE CLAIMS:

Please amend the claims as follows:

Claim 5: line 1, delete "or 4".

Claim 6: line 1, delete "4, or 5,".

Claim 7: lines 1-2, change "any one of claims 3 to 6" to --claim 3--.

Claim 8: line 1, change "any preceding claim" to --claim 1--.

Claim 9: lines 1-2, change "any one of claims 3 to 7" to --claim 3--.

Claim 10: lines 1-2, change "any preceding claim" to --claim 1--.

REMARKS

The foregoing amendments are made in order to remove multiple dependencies and avoid the Government surcharge. Entry and consideration of this Amendment is respectfully requested.

Respectfully submitted,

Robert J. Seas, Jr.
Registration No. 21,092

SUGHRUE, MION, ZINN,
MACPEAK & SEAS, PLLC
2100 Pennsylvania Avenue, N.W.
Washington, D.C. 20037-3213
Telephone: (202) 293-7060
Facsimile: (202) 293-7860

Date: March 20, 2000

A LOW-CURRENT OUTLET HAVING A REAR ORGANIZER CAP

The present invention relates to a low-current outlet for use in computing or in telephony. Such an outlet, e.g. of the RJ45 type, generally comprises an outlet base provided with a pluggable socket containing a plurality of (usually eight) contact pins. By means of a plug, it is possible to connect to the contact pins. Naturally, the pluggable socket is situated at the front of the outlet. At the rear of the outlet, a connection cable is generally connected to insulation-displacement contacts which are naturally angularly positioned perpendicularly to the conductor wires on which the insulation is to be cut and displaced.

In order to connect the conductor wires of the connection cable, devices exist for stowing and organizing said wires and for fixing them to the insulation-displacement contacts of the outlet base. In general, such a device are in the form of a cap that can be mounted on the outlet base. A typical example of an organizer cap is in the form of a comb through which the conductor wires of the connection cable are caused to pass. The comb consists of an aligned row of wire feed-through channels disposed side by side. Therefore, it is relatively difficult and laborious to thread the wires into their respective wire feed-through channels because it is almost obligatory to thread all of the wires in the same operation. The conductor wires must therefore be disposed side-by-side in aligned manner in a precise order that is distinguished by different wire colors. The operator in charge of connecting the connection cable to the outlet in question must therefore perform this laborious positioning task before it is possible to insert the wires into the organizer cap. Once this complicated operation has been performed, the organizer cap is mounted laterally onto the insulation-displacement contacts of the outlet base by exerting a push force on the cap so as to engage the wires into the respective

insulation-displacement contacts. Once the organizer cap has been pushed in to its maximum engagement position, it is guaranteed that the insulation on all of the conductor wires will have been cut through to the cores of the wires by the insulation-displacement contacts. The conductor wires are thus wired simultaneously.

As mentioned above, the use of such organizer caps is relatively laborious because of the difficulty encountered in threading all of the conductor wires into their respective wire feed-through channels. In addition, it should be noted that the cap configuration in the form of a comb having wire feed-through channels in parallel alignment causes any traction applied to the connection cable or to the outlet to be exerted directly on the cores of the conductor wires wedged in the insulation-displacement contacts. Any high traction applied to the cable or to the outlet causes the cores of the wires to slide in the insulation-displacement contacts, or even causes the conductor wires to be severed.

That problem can be encountered in particular in the outlet described in Document EP-0 735 612. That outlet conventionally comprises an outlet base and an organizer cap. The outlet base is provided with two rows of four insulation-displacement contacts which point upwards, when the outlet is positioned as it is to be installed in a wall. The two rows of contacts are offset vertically and horizontally one relative to the other, so that they are disposed in the manner of terraces. In addition, the cap also defines two rows of guide holes for the eight wires from the cable to be connected. The two rows of four holes open out in offset manner so that it is possible to insert the wires into the insulation-displacement contacts of the outlet base. In that outlet, as in the conventional outlets of the prior art, the cap is mounted onto the base laterally, i.e. perpendicularly to the plug-in axis along which the

outlet is plugged. As a result, it suffers from the above-mentioned problem of the wires being torn out when traction is applied to the cable because they extend substantially rectilinearly to the outlet.

An object of the present invention is to remedy the above-mentioned drawbacks of the prior art by defining a low-current outlet having an organizer cap with which it is simpler to install the various conductor wires, and in which the connection performed by the organizer cap is stronger in that any traction applied to the cable is not passed on to the cores of the wires engaged in the insulation-displacement contacts.

For this purpose, the present invention provides a low-current outlet comprising:

an outlet base provided with contact pins to which a plug can be connected by engaging it along a given plug-in axis; and

an organizer cap that can be mounted on the outlet base, which cap, on being fixed to the base, establishes the electrical contact between the conductor wires of a connection cable and the contact pins of the base, the cap being provided with wire guides making it possible to position the wires in three dimensions repetitively and separately so that they are connected electrically to the contact pins on fixing the cap to the base;

said low-current outlet being characterized in that the cap can be mounted onto the low-current outlet from the rear and along said plug-in axis.

Unlike prior art outlets in which the cable, which always comes from the rear of the outlet, is mounted laterally into the outlet base by means of the organizer cap, in the present invention, the cable is brought into the outlet base in the same direction as the insulation-displacement contacts, which requires folding or changing the direction of the wires in the organizer cap so as to bring them perpendicular to the insulation-displacement contacts.

Advantageously, each wire guide serves to guide one pair of wires, said guides being disposed in a polygonal geometrical configuration. Thus with the organizer cap of the invention, the various conductor wires are installed in pairs in the organizer cap, which greatly facilitates this operation. In general, there are four of said wire-pair guides for a conventional cable comprising four pairs of wires, and they are disposed in a rectangular configuration. Thus, the various pairs of conductor wires are separated in three dimensions.

According to an advantageous characteristic, each wire-pair guide comprises a common guide duct that is common to the pair of wires, and two locking channels for respective ones of the wires of the pair. In which case, the common guide ducts may extend substantially along said plug-in axis, and the locking channels may extend substantially perpendicularly to said plug-in axis.

As a result, the common guide duct and each of the two locking channels make an angle such as to form an edge on which the respective wire forms a locking fold. Thus, the conductor wires can be firstly pulled fully through the common guide duct, and then folded over into their respective locking channels, thereby forming the locking folds at the edges that form the transitions between the common guide duct and the respective locking channels. The locking folds guarantee firstly that the wires are pulled fully through the organizer cap so that the shielding of the connection cable or of the individual pairs of wires extends to as close as possible to the organizer cap, and secondly that the wires are held stationary permanently in the organizer cap. The locking folds thus perform two functions. In addition, since the electrical contact with the insulation-displacement contacts is established in the locking channels, any traction on the connection cable is not passed on at the insulation-displacement contacts, but instead at the locking fold which forms a stop for the

folded-over wire. Folding over the wires prior to connecting them also makes it possible for the cap to be mounted on the base from the rear, which is easier than mounting it laterally.

In addition, in order to lock the wires permanently in their respective channels, the locking channels are provided with retaining means such as lugs for holding the locked wires in their respective channels. The edges on which the locking folds are formed already make it possible to lock the wires, but the retaining means, e.g. in the form of lugs, guarantee that the conductor wires are held stationary permanently in the channels, so that any traction exerted on the cable cannot give rise to the conductor wires being disengaged from their respective channels.

In a practical embodiment, the common guide ducts are open laterally so as to enable the pairs of wires to be inserted laterally into them. As a result, it is not necessary to thread the pairs of wires into their respective pair guides, but rather they can simply be engaged laterally therein, which greatly facilitates inserting the pairs into the guides. In which case, the wire pair guides are in the form of notches in the organizer cap, each of which notches opens out at its bottom end in the two respective locking channels. The operator in charge of wiring then merely needs to organize the four pairs of wires in three dimensions in four divergent directions, to bring the cable end arranged in this way over the organizer cap, and then to push the four pairs of wires one-by-one into the laterally-open guides. Then the operator merely needs to fold over the conductor wires by pulling them into their respective locking channels. The final operation consists merely in mounting the organizer cap on the rear of the outlet base and in pushing it therein until the conductor wires are engaged in the insulation-displacement contacts.

According to another characteristic, the wire guides are isolated electromagnetically from one another by a cross-shaped screening device which extends beyond the electrical contact between the wires and the outlet base. This characteristic is particularly advantageous when connection cables are used in which each pair of wires is shielded with a metal screen. Thus, the electromagnetic screens separating the various guides make it possible to provide excellent guide-to-guide isolation by extending the isolation provided by the screens on the pairs. In which case, it is particularly advisable to pull the pairs of screened cables as far as possible into the pair guides so as to avoid giving rise to any interruption in the isolation. This operation is particularly simple to perform with the organizer cap of the invention, because it is possible to pull the wires strongly through the common guide duct and then to fold them over the edges into their respective locking channels. The wires are thus locked firmly in their permanent positions so that slackening of the conductor wires does not give rise to any displacement of said wires in the organizer cap. In another practical embodiment, the base is provided with insulation-displacement contacts connected electrically to the contact pins, each locking channel is provided with a through housing enabling the insulation-displacement contact to be inserted transversely to the wires locked in their respective channels. The fact that the electrical contact is established at the those sections of the wires which are situated in the locking channels guarantees a certain amount of independence from the connection cable, in that any traction on the cable is exerted only at the locking fold and not at the insulation-displacement contacts.

In another aspect of the invention, the cap is provided with a drain wire guide that enables the drain wire to be grounded on fixing the cap to the base. Thus, in the same way as the conductor wire guides, the drain

wire guide makes it possible, in the same operation of fixing the cap to the base, to put the drain wire in contact with a ground-forming metal or metal-plated portion.

Other characteristics and advantages of the invention appear more clearly from the following detailed description given with reference to the accompanying drawings which show embodiments of the present invention by way of non-limiting example.

In the drawings,

Figure 1 is an exploded perspective view of an embodiment of a low-current outlet of the present invention;

Figure 2 is a view of the low-current outlet of Figure 1, shown in the assembled state;

Figure 3 is an exploded cross-section view of the low-current outlet of Figures 1 and 2;

Figure 4 is a cross-section view of the outlet of Figure 3, shown in the assembled state;

Figure 5 is an exploded cross-section view of another embodiment of a low-current outlet;

Figure 6 is a cross-section view of the low-current outlet of Figure 5, shown in the assembled state; and

Figure 7 is a plan view of the low-current outlet shown in Figures 5 and 6.

Reference is made initially to Figures 1 to 4, to explain a first embodiment of a low-current outlet of the invention. As can be seen in the exploded view in Figure 1, the low-current outlet essentially comprises two component parts, namely an outlet base 2 and a rear organizer cap 1. Both of the parts 1 and 2 may be made of molded plastic. As shown in Figures 1 and 2, the front face of the base 2 faces downwards and is provided with a pluggable socket in which contact pins 25 are disposed, such as the contact pins shown in Figures 5 and 6, it being possible to connect a plug to the contact pins along a given plug-in axis. In general, in an RJ45-

type outlet, there are eight contact pins 25. Each contact pin 25 is connected electrically to a respective insulation-displacement contact 21, as shown in Figures 3 and 4. The insulation-displacement contacts 21 are accessible from the rear of the base 2 when the rear cap 1 is removed, and they extend along the plug-in axis. As shown in Figures 1 and 2, the rear face of the base 3 faces upwards. An object of the rear organizer cap 1 is to engage the individual conductor wires of a connection cable 3 in the respective insulation-displacement contacts 21 of the outlet base 2. In the embodiment shown in Figures 1 to 4, the outlet base 2 is provided with a cross-shaped screen element 24 which subdivides the outlet base 2 into four compartments that are well isolated electromagnetically from one another. Advantageously, the screen 24 may be made of a metal such as Zamak (a zinc alloy). Each compartment defined by the screen 24 contains two insulation-displacement contacts 21. In the example used for the description, an eight-pin outlet base is chosen, the outlet base thus having eight insulation-displacement contacts 21, but it is also possible to provide low-current outlets with more than or with less than eight contact pins. The number of insulation-displacement contact pins should not be considered to be limiting to the invention. The outlet base 2 described above is common to both of the embodiments shown in the figures, except for the screen 24.

The organizer cap 1 may be mounted on the rear of the outlet base 2, e.g. by snap-fastening. For this purpose, the screen 24 is provided with snap-fastening catches 240 which enable the rear cap 1 to be fixed permanently to the outlet base 2. Optionally, in order to hold the organizer on the base 2 firmly and immovably, a holding ring 25 may be provided, which ring snap-fastens onto the screen 24 while bearing against the cap 1.

The rear organizer cap 1 has a cross-sectional area that is somewhat smaller than the cross-sectional area of the outlet base 2, so that the cap can be inserted into the base 2. In the example shown in Figures 1 to 4, in which a screen 24 is implemented, the organizer cap 1 is provided with a central insertion passageway 16 allowing the cross-shaped top portion of the screen 24 to pass through it. In the assembled state, the snap-fastening catches 240 on the screen 24 bear against the top face 10 of the cap 1 at the ends of the cross-shaped passageway 16. Permanent fixing is thus obtained.

According to an advantageous characteristic of the invention, the organizer cap 1 is provided with four wire-pair guides 11 disposed relative to one another in a manner such as to form a rectangle. Each guide 11 corresponds to a compartment in the base 2 as defined by the screen 24. It can be seen that each wire-pair guide 11 has an elongate section, enabling a pair of wires disposed side-by-side to be inserted through it. Those portions of each the guide 11 which are visible from the face 10 of the cap 1 constitute a common guide duct 11 enabling a pair of wires 31, 32 to pass through it. The common guide duct 11 passes through the cap 1 from the surface 10 to the other side. It is thus possible to pass the wire pairs 31, 32 separately through the cap 1 by engaging them respectively in their respective guide ducts 11. The fact that the common guide ducts 11 are disposed in a polygonal geometrical configuration (a rectangular configuration in the present case) greatly facilitates the operation of inserting the wires through the organizer cap 1. Whereas in the prior art, it is essential to dispose the conductor wires in the same plane in a well aligned and ordered manner, by means of the organizer cap 1 of the invention, it is possible to organize them three-dimensionally in pairs and then to insert the pairs one-by-one into their respective common guide ducts 11. In this way, a considerable amount of

time is saved when wiring the outlet. Once the four wire pairs 31, 32 have been inserted through the cap 1 by being engaged in the common guide ducts 11, the operator can pull on the wires to bring the shielding screen 30 of the cable 3 as close as possible to the cap 1. As shown in Figures 3 and 4, if each pair of wires 31, 32 is individually isolated by a screen 33, it is possible to pull on the wires on the other side of the cap 1 so as to cause the shielding screen 33 of the each of the individual pairs to penetrate at least in part into the respective common guide duct 11. Since the outlet base 2 is provided with an isolating screen 24, there is no interruption in the isolation between the cable 3 and the outlet of the invention. As can be seen in Figure 4, the shielding screen 30 of the cable 3 is pulled until it comes into contact with the top portion of the screen 24 while the shielding screens 33 of the respective pairs penetrate into the common guide ducts 11. It is then possible to fold over the conductors individually so as to engage them individually into locking channels 12 which extend perpendicularly to the guide channels 11 and which are open over their lengths to the front of the cap, as can be seen in Figure 1. Thus, each guide duct 11 opens out laterally into two locking channels 12. It can be understood from Figure 1 that four locking channels 12 open out laterally on either side of the cap 1. With reference to Figures 5 and 6, it can be seen that, at the inlet of each of the locking channels 12, the cap 1 forms a projecting edge 13. Thus, when the operator folds over the individual wires into the locking channels 12, said wires are constrained to form locking folds at the edges 13. This locking fold on each of the conductor wires offers several advantages. Firstly, the folds make it possible to fix the position of the cable 3 permanently relative to the cap 1. In addition, the locking folds make it possible to bring the wires perpendicular to the insulation-displacement contacts 21.

Furthermore, the locking folds make it possible to leave those portions of the wires which are engaged in the channels 12 substantially free from stress whenever traction is applied to the cable 3. Unlike the device of the prior art, in which the wires are merely engaged in the organizer cap and are free to slide therein, with the organizer cap of the invention, the wires are locked inside, which fixes the position of the cable 3 relative to the cap 1 permanently and immovably even before it is fixed to the base 2.

In order to prevent the sections of conductor wire from disengaging from the locking channels 12, said channels are provided with retaining means, e.g. in the form of retaining lugs 120 that, in each channel, define a through sectional area that is slightly smaller than the sectional area of each of the conductor wires so that, once they have been engaged under force into the locking channels 12, the conductor wires can no longer be disengaged therefrom. The locking fold formed on the edge 13 is thus permanently fixed in position. In addition, in order to enable the insulation-displacement contacts 21 to be engaged transversely onto the sections of conductor wire engaged in the locking channels 12, through insertion housings 14 are provided, which housings are disposed in a manner corresponding to the geometrical configuration of the insulation-displacement contacts 21.

With reference, for example, to Figures 3 and 4, or 5 and 6, a description follows of an operation of fixing an organizer cap 1 to a base 2. Once all of the conductor wires have been correctly installed in the organizer cap 1, as shown in Figure 5, it is optionally possible to cut off the ends of the wires so that they do not extend beyond the cap 1. Then, it is necessary merely to mount the cap 1 from the rear into the socket 30 formed by the base 2 until the snap-fastening catches 22 on the base 2 snap-fasten to the organizer cap 1.

Once this position has been reached (Figures 4 and 6), it is guaranteed that the conductor wires are properly engaged in the insulation-displacement contacts, thereby establishing the electrical contact with the contact pins 25. The low-current outlet of the invention is then operational.

Figure 7 shows a second embodiment of a low-current outlet of the invention. The variant incorporated in this second embodiment, lies in the design of the organizer cap 1, while the base 2 is identical except that it does not include an isolating screen 24 compartmentalizing the base 2 into four electromagnetically isolated spaces. The particularity incorporated in the organizer cap 1 shown in Figure 7 lies in the fact that the common guide ducts 11 are open laterally so that it is possible to engage the pairs of wires laterally into the ducts 11. Whereas, in the first embodiment, it is necessary to insert the wires into the ducts 11 from the face 10 of the cap 1, with the cap 1 shown in Figure 7, it is possible to engage them more simply by inserting them laterally. In addition, this type of cap 1 is provided with a drain wire guide 15 making it possible to connect the drain wire to ground on fixing the cap 1 to the base 2.

By means of the organizer cap 1 of the invention, it is possible to subdivide the cable 3 into pairs, and then consecutively to position the pairs of wires one after another, so that the wiring operation is much simpler. It should also be noted that the cap is placed on the base from the rear, which means that the locking folding of the wires withstands traction. In addition, the screen 24 makes it possible to isolate the pairs of wires to beyond the insulation-displacement contacts, which guarantees shielding continuity between pairs even if the shielding of the pairs disappears at the ducts.

CLAIMS

1/ A low-current outlet comprising:

an outlet base (2) provided with contact pins (25) to which a plug can be connected; and

a rear cap (1) that can be mounted on the rear of the outlet base (2), which cap (1), on being fixed to the base, establishes the electrical contact between the conductor wires (31, 32) of a connection cable (3) and the contact pins (25) of the base (2), the cap (1) being provided with wire-pair guides (11, 12) making it possible to position the pairs of wires (31, 32) in three dimensions so that they are connected electrically to the contact pins (25) on fixing the cap (1) to the base (2);

said low-current outlet being characterized in that each wire-pair guide makes an angle such as to form an edge (13) on which the respective wire forms a locking fold.

2/ A low-current outlet according to claim 1, in which each wire guide (11, 12) serves to guide one pair of wires, said guides being disposed in a polygonal geometrical configuration.

3/ A low-current outlet according to claim 1, in which each wire-pair guide comprises a common guide duct (11) that is common to the pair of wires (31, 32), and two locking channels (12) for respective ones of the wires of the pair.

4/ A low-current outlet according to claim 3, in which the common guide ducts (11) extend substantially along said plug-in axis by passing through the cap, and the locking channels (12) extend substantially perpendicularly to said plug-in axis over the front of the cap, while being open over their lengths.

5/ A low-current outlet according to claim 3 or 4, in which the common guide duct (11) and each of the two locking channels (12) make an angle such as to form the edge (13) on which the respective wires form locking folds.

6/ A low-current outlet according to claim 3, 4, or 5, in which the locking channels (12) are provided with retaining means (120) such as lugs for holding the locked wires (31, 32) in their respective channels (12).

7/ A low-current outlet according to any one of claims 3 to 6, in which the common guide ducts (11) are open laterally so as to enable the pairs of wires (31, 32) to be inserted laterally into them.

8/ A low-current outlet according to any preceding claim, in which the wire guides (11, 12) are isolated electromagnetically from one another by a cross-shaped screening device (24) which extends beyond the electrical contact between the wires and the outlet base.

9/ A low-current outlet according to any one of claims 3 to 7, in which the base (2) is provided with insulation-displacement contacts (21) connected electrically to the contact pins (25), each locking channel (12) is provided with a through housing (14) enabling the insulation-displacement contact (25) to be inserted transversely to the wires (31, 32) locked in their respective channels (12).

10/ A low-current outlet according to any preceding claim, in which the cap (1) is provided with a drain wire guide (15) that enables the drain wire to be grounded on fixing the cap (1) to the base (2).

A B S T R A C T

A LOW-CURRENT OUTLET HAVING A REAR ORGANIZER CAP

The present invention relates to a low-current outlet comprising: an outlet base (2) provided with contact pins (25) to which a plug can be connected by engaging it along a given plug-in axis; and an organizer cap (1) that can be mounted on the outlet base (2), which cap (1), on being fixed to the base, establishes the electrical contact between the conductor wires (31, 32) of a connection cable (3) and the contact pins (25) of the base (2), the cap (1) being provided with wire guides (11, 12) making it possible to position the wires (31, 32) in three dimensions repetitively and separately so that they are connected electrically to the contact pins (25) on fixing the cap (1) to the base (2); said low-current outlet being characterized in that the cap (1) can be mounted onto the low-current outlet (2) from the rear and along said plug-in axis.

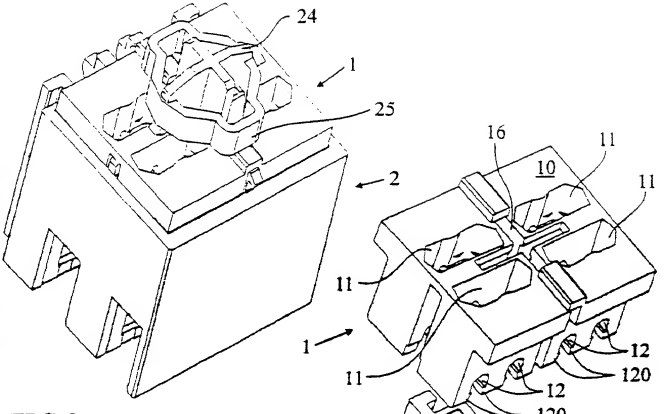


FIG.2

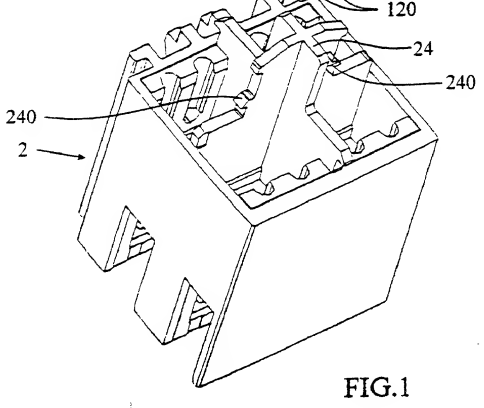


FIG.1

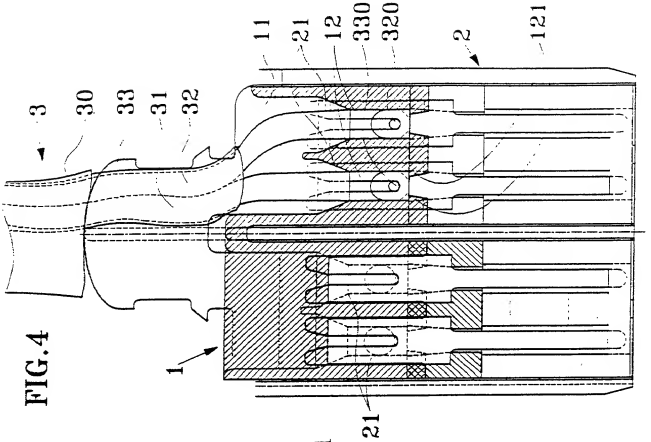


FIG.4

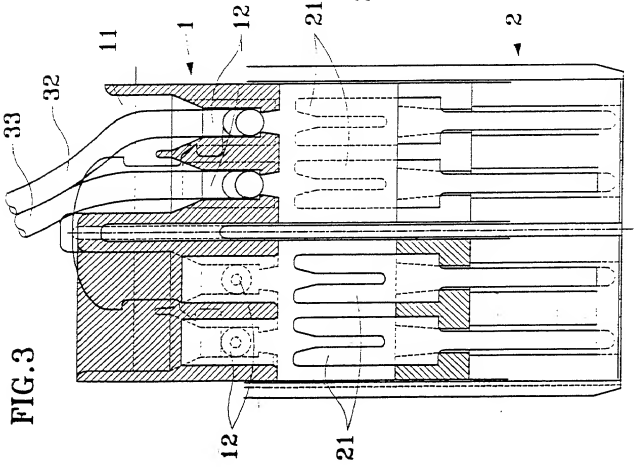


FIG.3

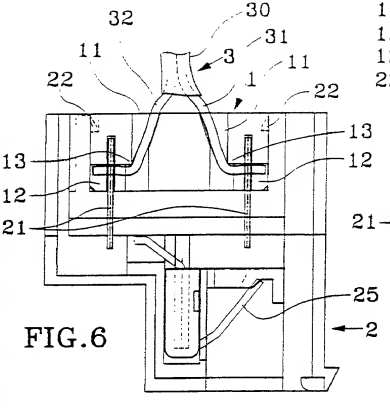


FIG.6

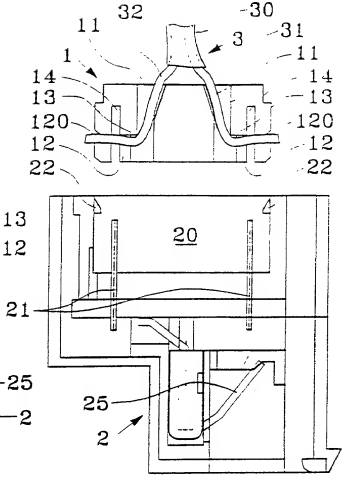


FIG.5

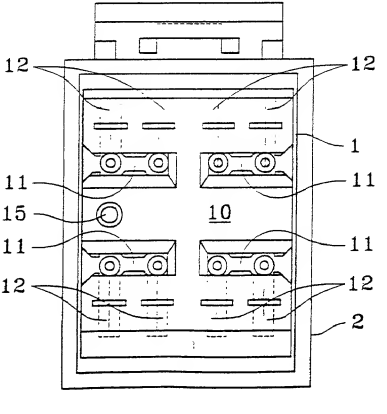


FIG.7

Declaration and Power of Attorney for Patent Application

Déclaration et Pouvoirs pour Demande de Brevet

French Language Declaration

En tant que l'inventeur nommé ci-après, je déclare par le présent acte que:

As a below named inventor, I hereby declare that:

Mon domicile, mon adresse postale et ma nationalité sont ceux figurant ci-dessous à côté de mon nom.

My residence, post office address and citizenship are as stated next to my name.

Je crois être le premier inventeur original et unique (si un seul nom est mentionné ci-dessous), ou l'un des premiers co-inventeurs originaux (si plusieurs noms sont mentionnés ci-dessous) de l'objet revendiqué, pour lequel une demande de brevet a été déposée concernant l'invention intitulée

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

PRISE DE COURANT FAIBLE A CAPUCHON ARRIERE ORGANISATEUR

A LOW-CURRENT OUTLET HAVING A REAR ORGANIZER CAP

et dont la description est fournie ci-joint à moins que la case suivante n'ait été cochée:

the specification of which is attached hereto unless the following box is checked:

XX a été déposée le 18 septembre 1998** sous le numéro de demande des Etats-Unis ou le numéro de demande international PCT PCT/FR98/02004 et modifiée le 18 septembre 1999 (le cas échéant).

XX was filed on September 18, 1998** as United States Application Number or PCT International Application Number PCT/FR98/02004 and was amended on September 18, 1999 (if applicable).

** date de dépôt international

** International filing date

Je déclare par le présent acte avoir passé en revue et compris le contenu de la description ci-dessus, revendications comprises, telles que modifiées par toute modification dont il aura été fait référence ci-dessus.

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

Je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

French Language Declaration

Je revendique par le présent acte avoir la priorité étrangère, en vertu du Titre 35, § 119(a)-(d) ou § 365(b) du Code des Etats-Unis, sur toute demande étrangère de brevet ou certificat d'inventeur ou, en vertu du Titre 35, § 365(a) du même Code, sur toute demande internationale PCT désignant au moins un pays autre que les Etats-Unis et figurant ci-dessous et, en cochant la case, j'ai aussi indiqué ci-dessous toute demande étrangère de brevet, tout certificat d'inventeur ou toute demande internationale PCT ayant une date de dépôt précédant celle de la demande à propos de laquelle une priorité est revendiquée.

I hereby claim foreign priority under Title 35, United States Code, § 119(a)-(d) or § 365(b) of any foreign application(s) for patent or inventor's certificate, or § 365(a) of any PCT International application which designated at least one country other than the United States, listed below, and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT International application having a filing date before that of the application on which priority is claimed.

Prior foreign application(s) Demande(s) de brevet antérieure(s)		Priority Not Claimed Droit de priorité non revendiqué
FR-97.11763	FRANCE	September 22, 1997 —
(Number) (Numéro)	(Country) (Pays)	(Day/Month/Year Filed) (Jour/Mois/Année de dépôt)
(Number) (Numéro)	(Country) (Pays)	(Day/Month/Year Filed) (Jour/Mois/Année de dépôt)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 119(e) du Code des Etats-Unis, de toute demande de brevet provisoire effectuée aux Etats-Unis et figurant ci-dessous.

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below.

(Application No.) (N° de demande)	(Filing Date) (Date de dépôt)
(Application No.) (N° de demande)	(Filing Date) (Date de dépôt)

Je revendique par le présent acte tout bénéfice, en vertu du Titre 35, § 120 du Code des Etats-Unis, de toute demande de brevet effectuée aux Etats-Unis, ou en vertu du Titre 35, § 365(c) du même Code, de toute demande internationale PCT désignant les Etats-Unis et figurant ci-dessous et, dans la mesure où l'objet de chacune des revendications de cette demande de brevet n'est pas divulgué dans la demande antérieure américaine ou internationale PCT, en vertu des dispositions du premier paragraphe du Titre 35, § 112 du Code des Etats-Unis, je reconnais devoir divulguer toute information pertinente à la brevetabilité, comme défini dans le Titre 37, § 1.56 du Code fédéral des réglementations, dont j'ai pu disposer entre la date de dépôt de la demande antérieure et la date de dépôt de la demande nationale ou internationale PCT de la présente demande:

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s), or § 365(c) of any PCT International application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

(Application No.) (N° de demande)	(Filing Date) (Date de dépôt)	(Status)(patented, pending, abandoned) (Statut)(breveté, en cours d'examen, abandonné)
(Application No.) (N° de demande)	(Filing Date) (Date de dépôt)	(Status)(patented, pending, abandoned) (Statut)(breveté, en cours d'examen, abandonné)

Je déclare par le présent acte que toute déclaration ci-incluse est, à ma connaissance, véridique et que toute déclaration formulée à partir de renseignements ou de suppositions est tenue pour véridique; et de plus, que toutes ces déclarations ont été formulées en sachant que toute fausse déclaration volontaire ou son équivalent est passible d'une amende ou d'une incarcération, ou des deux, en vertu de la Section 1001 du Titre 18 du Code des Etats-Unis, et que de telles déclarations volontairement fausses risquent de compromettre la validité de la demande de brevet ou du brevet délivré à partir de celle-ci.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

French Language Declaration

POUVOIRS: En tant que l'inventeur cité, je désigne par la présente l'(les) avocat(s) et/ou agent(s) suivant(s) pour qu'ils poursuivre(nt) la procédure de cette demande de brevet et traite(nt) toute affaire s'y rapportant avec l'Office des brevets et des marques: *(mentionner le nom et le numéro d'enregistrement).*

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith: *(list name and registration number)*

John H. Mion, Reg. No. 18,879; Donald E. Zinn, Reg. No. 19,046; Thomas J. Macpeak, Reg. No. 19,292; Robert J. Seas, Jr., Reg. No. 21,092; Darryl Mexic, Reg. No. 23,063; Robert V. Sloan, Reg. No. 22,775; Peter D. Olexy, Reg. No. 24,513; L. Frank Oehs, Reg. No. 24,625; Waddell A. Biggart, Reg. No. 24,861; Robert G. McMorrow, Reg. No. 19,093; Louis Oubiriaky, Reg. No. 24,853; Neil B. Siegel, Reg. No. 25,200; David J. Cushing, Reg. No. 28,703; John R. Inge, Reg. No. 26,916; Joseph J. Rush, Jr., Reg. No. 26,577; Sheldon I. Landerman, Reg. No. 25,430; Richard G. Turner, Reg. No. 29,710; Howard L. Bernstein, Reg. No. 25,665; Alan J. Kasper, Reg. No. 25,426; Kenneth J. Burchfiel, Reg. No. 31,333; Gordon Kit, Reg. No. 30,764; Susan J. Mack, Reg. No. 30,951; Frank L. Bernstein, Reg. No. 31,484; Mark Boland, Reg. No. 32,197; William H. Mandir, Reg. No. 32,156; Scott M. Daniels, Reg. No. 32,562; Brian W. Hannon, Reg. No. 32,778; Abraham J. Rosner, Reg. No. 33,276; Bruce E. Kramer, Reg. No. 33,725; Paul F. Neils, Reg. No. 33,102; and Brett S. Sylvester, Reg. No. 32,765.

Adresser toute correspondance à:	Send Correspondence to: SUGHRUE, MION, ZINN, MACPEAK & SEAS, PLLC 2100 Pennsylvania Avenue, N.W., Suite 800 Washington, D.C. 20037-3202
Adresser tout appel téléphonique à: *(nom et numéro de téléphone)*	Direct Telephone Calls to: *(name and telephone number)*

Nom complet de l'unique ou premier inventeur Jacques NOZICK	Full name of sole or first inventor Jacques NOZICK
Signature de l'inventeur Date	Inventor's signature Date April 4, 2000
Domicile idem adresse postale	Residence same as P.O. address
Nationalité Française	Citizenship French
Adresse postale 38, rue Lacépède 75005 PARIS / FRANCE	Post Office Address 38, rue Lacépède 75005 PARIS / FRANCE
Nom complet du second co-inventeur, le cas échéant	Full name of second joint inventor, if any
Signature du second inventeur Date	Second inventor's signature Date
Domicile	Residence
Nationalité	Citizenship
Adresse postale	Post Office Address

(Fournir les mêmes renseignements et la signature de tout co-inventeur supplémentaire.)

(Supply similar information and signature for third and subsequent joint inventors.)